

We claim:

1. A method for enhanced uplink data transmission, comprising:

independently generating a transport channel for each  
transmission mode, each transport channel having an associated

5 transmission time interval (TTI);

multiplexing the generated transport channels on a selected TTI  
basis to form a composite transport channel, the selected TTI being  
selected from one of the TTIs associated with the independently  
generated transport channels; and

10 mapping the composite transport channel onto a physical  
channel.

2. The method of claim 1, wherein the selected TTI is a minimum of  
the TTIs associated with the independently generated transport

15 channels.

3. The method of claim 1, wherein the independently generating step  
generates first and second transport channels having first and second  
TTIs, and the second TTI is a multiple of the first TTI.

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4. The method of claim 3, wherein the transmission mode associated  
with the first transport channel is a scheduled transmission mode and  
the transmission mode associated with the second transport channel  
is a autonomous transmission mode.

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5. The method of claim 4, wherein the first TTI is 2ms and the second TTI is 10ms.

6. The method of claim 1, wherein the generating step independently  
5 generates transport channels for more than one transmission mode.

7. The method of claim 6, wherein the TTI of each transmission mode is one of a sub-multiple and multiple of 10 ms.

10 8. The method of claim 1, wherein the independently generating step generates first and second transport channels having first and second TTIs, the transmission mode associated with the first transport channel is a scheduled transmission mode and the transmission mode associated with the second transport channel is a autonomous  
15 transmission mode.

9. The method of claim 6, wherein the first TTI is 2ms and the second TTI is 10ms.

20 10. The method of claim 1, wherein the mapping step maps the composite transport channel onto the physical channel on the selected TTI basis.

11. An apparatus for enhanced uplink data transmission, comprising:

at least two control units each independently generating a transport channel for a different transmission mode, and each transport channel having an associated transmission time interval (TTI);

5           a transport channel multiplexer multiplexing the generated transport channels on a selected TTI basis to form a composite transport channel, the selected TTI being selected from one of the TTIs associated with the independently generated transport channels; and  
a mapping unit mapping the composite transport channel onto  
10 a physical channel.

12. A method of wireless uplink communication comprising:  
mapping at least two transport channels within a physical  
channel.

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13. The method of Claim 12, wherein each of the transport channels has a distinct transmission time interval ("TTI") associated thereto.

14. The method of Claim 12, wherein the two transport channels  
20 are generated for each transmission mode.

15. The method of Claim 12, comprising:  
multiplexing the two transport channels to form a composite  
transport channel.

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16. The method of Claim 15, wherein the two transport channels are multiplexed in response to a selected transmission time interval ("TTI") basis.

5 17. The method of claim 16, wherein the selected TTI is a minimum of the TTIs associated with the independently generated transport channels.

18. The method of claim 14, wherein the transport channels are  
10 generated by generating at least a first and a second transport channel having first and second TTIs, and the second TTI is a multiple of the first TTI.

19. The method of claim 14, wherein the transmission mode  
15 associated with the first transport channel is a scheduled transmission mode and the transmission mode associated with the second transport channel is a autonomous transmission mode.

20. The method of claim 12, wherein the step of mapping maps the  
20 composite transport channel onto the physical channel on the selected TTI basis.